Interferon

INTERFERONS ARE PROTEINS discovered more than 30 years ago that act as an element in the body's natural defenses. First noted for their antiviral effects, interferons also show antitumor and immunologic properties. Currently, three types of interferons are recognized: α, β, and γ.

Recombinant and natural interferons are available for clinical use. In the United States, interferons have received Food and Drug Administration (FDA) approval for treating hairy cell leukemia; condyloma acuminatum; Kaposi's sarcoma in patients with the acquired immunodeficiency syndrome; and non-A, non-B (type C) hepatitis. Interferons have also shown effectiveness in basal cell carcinoma, squamous cell carcinoma, and melanoma, with approval for intralesional interferon for basal cell carcinoma in more than 20 other countries, including Canada and Australia.

Interferons were initially noted in dermatology for their role in the treatment of condyloma acuminatum. Despite numerous nonsurgical and surgical treatments, genital warts continue to have a high rate of recurrence after treatment at follow-up several months later. Both recombinant interferon alfa-2b (Intron A, Schering Corporation) and human leukocyte-derived interferon alfa-n3 (Alferon N Injection, Interferon Sciences) have been effective for intralesional treatment of genital condyloma acuminatum. Combination therapy using laser surgery, electrosurgery, or cryosurgery followed by the intralesional administration of interferon appears to enhance results.

Primary superficial and nodular basal cell carcinomas have been successfully and safely treated with intralesional interferon alfa, with an overall cure rate of at least 80% based on excision of the treated site a year after therapy. The current treatment regimen recognized is 1.5 million IU administered intralesionally three times a week for three weeks (9 total injections; total dosage of 13.5 million IU). Patients need to have the appropriate long-term follow-up, just as with any therapy for their basal cell carcinoma. With the current lack of FDA approval, however, it is recommended that a small punch biopsy be taken at about three months after treatment to provide histologic evaluation in addition to clinical follow-up.

Squamous cell carcinomas also appear to respond to the intralesional administration of interferon alfa-2a. In a recent trial, cure rates were better than those achieved with basal cell carcinoma, with further studies pending to demonstrate repeatable results. Combination therapy for squamous cell carcinoma with interferon alfa-2a (Roferon-A, Hoffmann-LaRoche) and tretinoin may offer an increased response for patients with advanced squamous cell carcinoma of the skin.

Response rates for the treatment of metastatic melanoma with interferon (primarily interferon alfa) were initially similar to those of other therapies, with a range of 16% to 22%. Recently the use of interferon alfa plus a four-drug regimen (dacarbazine, vincristine sulfate, bleomycin sulfate, and lomustine) demonstrated a higher response rate and may offer promise with patients with metastatic melanoma.

Side effects related to intralesional interferon use may be systemic or local. For the most part, these are mild to moderate at the routine doses, and most commonly consist of fever, malaise, headache, and arthralgia. The use of acetaminophen can ameliorate a number of the systemic reactions, and discomfort can be decreased by giving treatment late in the day.

HUBERT T. GREENWAY, MD
La Jolla, California

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Silicone Use in Keloids

KELOID AND HYPERTROPHIC SCARS are both abnormal tissue responses to injury, sometimes as mild as acne papules. They are racially related, with an incidence as high as 15% in black African Americans. Keloids can be distinguished from hypertrophic scars in several ways. They are slower to develop, sometimes showing up months after the damage; they overgrow the margins of the original wound; they do not spontaneously regress; and they frequently cause symptoms such as pain, itching, and burning. The precise pathogenesis remains uncertain, but may be related to abnormal levels of tissue growth factors from new blood vessels.

These scars have been notoriously difficult to treat. Many painful and expensive therapies have been tried with varying success. Cold-steel excision with or without closure has recurrence rates of about 80%, and the once highly touted carbon dioxide laser has not been much better. The intralesional administration of corticosteroids every three weeks for periods of as long as six months has improved the results somewhat.

A novel approach using silicone products has been developed recently. The original papers reported the use of silicone creams in burn scars and contractures. Since then there have been several reports of silicone gel sheets and silastic gel sheets used preventively in high-risk patients, in both new and old keloids, and even after the excision of a keloid scar during the healing phase. A recent Israeli study showed 72% moderate to excellent results, with only a 12% no-response rate. Other reports have shown adjunct benefit with pressure garments and intralesional corticosteroids. There are reports of decreased symptoms within two hours of wearing the sheeting and more permanent benefits after several months.

Similar results have been reported with the use of silicone creams, silicone gel sheeting, and the rubbery silastic gel sheeting, even though this less flexible form does not have close contact with the surface irregularities of the scar. The silastic gel sheeting has the advantage of being relatively indestructible, so one sheet will frequently last through the entire course of therapy. The other products rarely last a week before they require replacement.